AMENDMENT NO. 2 MARCH 2015
TO
IS 15959 : 2011 ELECTRICITY METERING — DATA EXCHANGE FOR METER READING, TARIFF AND LOAD CONTROL — COMPANION SPECIFICATION

NOTE — This Amendment is to be read with Amendment No. 1 July 2014

(*Page* 13, *clause* **A-1.3**, *line* 2) — Insert 'Single phase whole current' after 3 phase 4 wire Whole current/Direct connected.

(*Page* 13, *Table* **21**) — Insert the following at the end:

(1)	(2)	(3)	(4)
iv)	**C3**	Single phase Whole current consumer metering	B, E

(*Page* 20, *clause* **E-5.3**) — Insert the following new clauses after **E-5.3**:

'E-6 LIST OF PARAMETERS FOR CATEGORY C3 METER (SINGLE PHASE WHOLE CURRENT METER)

The parameters listed are for single phase whole current consumer metering. This meter records energy in import mode. These meters shall be capable of recording import of energy.

The parameters identified for this are grouped under instantaneous parameters (*see* Table 43), block load profile (*see* Table 44), daily load profile (*see* Table 45), billing profile (*see* Table 46), name plate details (*see* Table 47), programmable parameters (*see* Table 48) and Indian reference tables (*see* Tables 49 to 54).

E-6.1 Instantaneous Parameters

Each of the parameters is a separate entity. The OBIS code for each parameter is identified as per DLMS/COSEM protocol.

Association access rights are as follows:

a) *Public client* — Read only for clock and no access for other objects.
b) *Meter reader* — Read only for all objects.
c) *Utility setting* — Read only for all objects.

The instantaneous parameters are listed in Table 43.

E-6.2 Snapshot of Instantaneous Parameters

The parameters of Table 43 shall be captured as a profile generic using the country specific OBIS code 1.0.94.91.0.255. The attribute 2 of each of the capture objects shall be copied into the profile at the instant of a request from the HOST.

E-6.3 Scaler Profile

This profile is meant for capturing the scaler-unit of each of the parameter listed in Table 43. This is modelled as profile generic (IC = 7) and is assigned the country specific OBIS code 1.0.94.91.3.255. The capture objects for this profile shall include the scaler unit attributes of the instantaneous parameters listed in Table 43. Instantaneous parameters that do not have a scaler-unit (like IC = 1) shall not be included in the capture objects list. The profile buffer shall have only one entry. This profile is not required to be updated periodically.

Price Group 6

E-7 BLOCK LOAD PROFILE PARAMETERS

This is an array of load survey data captured as a profile. The OBIS code is 1.0.99.1.0.255, with Interface class as 7. The capture objects of this block load profile are listed in Table 44 and the captured attribute shall be 2 of each interface class. The capture object values shall be copied into a buffer of this array automatically as per capture period which shall be set through OBIS code 1.0.0.8.4.255 of recording interval 1. The array of data shall be retained inside the meter memory for the last 35 days for a capture period of 1800 seconds for maximum of 4 parameters including real time clock-date and time.

Association access rights are as follows:

a) *Public client* — No access for all objects.
b) *Meter reader* — Read only for all objects.
c) *Utility setting* — Read only for all objects.

E-7.1 Scaler Profile

This profile is meant for capturing the scaler-unit of each of the parameter listed in Table 44. This is modelled as profile generic (IC = 7) and is assigned the country specific OBIS code 1.0.94.91.4.255. The capture objects for this profile shall include the scaler unit attributes (column 4) of the parameters listed in Table 44 and parameters that do not have a scaler-unit (like IC = 1) shall not be included in the capture objects list. The profile buffer shall have only one entry. This profile is not required to be updated periodically.

E-8 DAILY LOAD PROFILE PARAMETERS

This is an array of load survey data captured as a profile generic at the end of 24 h. The OBIS code is 1.0.99.2.0.255, with Interface class as 7. The capture objects of this daily load profile are as per Table 45 and the captured attribute shall be 2 of each interface class. The capture object values will be copied into a buffer of this array automatically as per capture period which shall be set through OBIS code 1.0.0.8.5.255 of recording interval 2. The capture period attribute shall be statically fixed as 24 h.

Association access rights are as follows:

a) *Public client* — No access for all objects.
b) *Meter reader* — Read only for all objects.
c) *Utility setting* — Read only for all objects.

E-8.1 Scaler Profile

This profile is meant for capturing the scaler-unit of each of the parameter listed in Table 45. This is modeled as profile generic (IC=7) and is assigned the country specific OBIS code 1.0.94.91.5.255. The capture objects for this profile shall include the scaler — unit attributes of the parameters listed in Table 45. The profile buffer shall have only one entry. This profile is not required to be updated periodically.

E-9 BILLING PROFILE PARAMETERS

The billing profile parameters are listed in Table 46.

Association access rights are as follows:

a) *Public client* — No access for all objects.
b) *Meter reader* — Read only for all objects.
c) *Utility setting* — Read only for all objects.

E-9.1 Scaler Profile

This profile is meant for capturing the scaler-unit of each of the parameter listed in Table 46. This is modelled as profile generic (IC = 7) and is assigned the country specific OBIS code 1.0.94.91.6.255. The capture objects for this profile shall include the scaler-unit attributes of the parameters listed in Table 46 and parameters that do not have a scaler-unit (like IC = 1) shall not be included in the capture objects list. The profile buffer shall have only one entry. This profile is not required to be updated periodically.

E-10 GENERAL PURPOSE PARAMETERS

The Name plate details (Table 47) and Programmable parameters (Table 48) are designated as general purpose parameters.

E-10.1 Name Plate Details

The data are meter specific information.

Association access rights for name plate details are as follows:

a) *Public client* — No access for all objects except meter serial number.
b) *Meter reader* — Read only for all objects.
c) *Utility setting* — Read only for all objects.

The Name plate details parameters are listed in Table 47.

This is modelled as profile generic with OBIS code = 0.0.94.91.10.255, IC = 7, Attribute = 2

E-10.2 PROGRAMMABLE PARAMETERS

Association access rights for programmable parameters given in Table 48 are as follows:

a) *Public client* — No access for all objects except real time clock.
b) *Meter reader* — Read only for all objects.
c) *Utility setting* — Read, write for all objects.

The programmable parameters are listed in Table 48.

E-11 EVENT REFERENCE TABLE

E-11.1 Events

Any exceptional/fraud/tamper condition is considered as an Event and stored in an Event code object (OBIS = 0.0.96.11.e.255 IC = 1, values of e range from 0 to 4). The value attribute (attr-2) of this object stores identifier corresponding to most recent event occurred in the meter. Unique identifier is assigned to occurrence and restoration of all possible events (identified so far) in the event reference tables (*see* Tables 49 to 53). Thus event code object will tell only about the most recent event and to get a picture of all events and associated information (at the time of event) an event log object is used. An event log object is modelled as Profile generic (OBIS = 0.0.99.98.e.255 IC = 7, values of e range from 0 to 4). The buffer attribute (attr-2) of this profile object will store (asynchronously) a new entry for every event (occurrence and restoration are considered as separate events). The capture objects for the event log object is defined in Table 54. The total no. of events to be stored shall be 20 for power ON/OFF event and not more than 50 for all other events.

The document containing test procedure, threshold values and persistence time for event simulation shall be provided by the test requesting organization.

E-11.2 Capture Parameters for Event as Applicable (Event Log Profile)

Association access rights are as follows:

a) *Public client* — No access
b) *Meter reader* — Read only
c) *Utility settings* — Read only

E-11.3 Indian Event Reference Tables (Refer Table 49 to 53)

E-11.4 Scaler Profile

This profile is meant for capturing the scaler-unit of each of the parameter listed in Table 54. This is modelled as profile generic (IC = 7) and is assigned the country specific OBIS code 1.0.94.91.7.255. The capture objects for this profile shall include the scaler-unit attributes of the parameters listed above. Parameters listed above that do not have a scaler-unit attribute shall not be included in the capture objects of this profile. The profile buffer shall have only one entry. This profile is not required to be updated periodically.

[NOTE — Amendment pertaining to three phase meters for IS 15959 : 2011 ELECTRICITY METERING — DATA EXCHANGE FOR METER READING, TARIFF AND LOAD CONTROL — COMPANION SPECIFICATION]

(*Page* 17, *Table* 23, *Note* 9) — Insert the following new note after Note 9:

'**10** The time stamp shall be at the end of the capture period (Ist entry value is 00:15 or 00:30 minutes as applicable and last entry value is 00:00 Hrs. next day)'.

(*Page* 19, *Table* 25, *Note* 10) — Insert the following note after Note 10:

'**11** The time stamp shall be at the end of the capture period (Ist entry value is 00:15 or 00:30 minutes as applicable and last entry value is 00:00 Hrs. next day)'.

(*Page* 20, *clause* **E-1**) — Insert the following matter in last line:

'Category A meter shall be considered as subset of Category C meter. The meter complying for Category C shall be deemed as complying to Category A also'.

(*Page* 20, *clause* **E-5.1**) — Insert the following matter in line 1:

'The billing profile parameters is also applicable for category A meters. The contents of Table 29 are for billing purposes'.

The billing profile parameters for category B meters are listed in Table 56.

(*Page* 21, *Table* 27) — Insert the following item after Sl. No. xxvii) under the Table:

'Sl No. (xxviii), Maximum demand, kW with OBIS code 1.0.1.6.0.255 and IC=4.
Sl No. (xxix), Maximum demand, kVA with OBIS code 1.0.9.6.0.255 and IC=4.'

(*Page* 21, *Table* 27) — Insert the following after Note 13:

14 For Sl No. (xxviii) and (xxix), the attributes 2 and 5 of indicated IC shall be captured in instantaneous profile. The attribute 3 of indicated IC shall be captured in Scaler profile. The RTC — Time format shall be HH:MM.

(*Page* 22, *Table* 28) — Insert the following note after Note 8:

9 The time stamp shall be at the end of the capture period (Ist entry value is 00:15 or 00:30 minutes as applicable and last entry value is 00:00 Hrs. next day).

(*Page* **23**, *Table* **29**) — Insert the following item after Sl. No. (xl) under the Table 29:

‘Sl No. (xli), Total power ON duration in minutes with OBIS code assigned is 0.0.94.91.13.255 and IC = 3’.

E-12 DAILY LOAD PROFILE PARAMETERS

This is an array of load survey data captured as a profile generic at the end of 24 h. The OBIS code is 1.0.99.2.0.255 with IC as 7 and the captured attribute shall be 2 of each Interface class. The capture object values will be copied into a buffer of this array automatically as per capture period which shall be set through OBIS code1.0.0.8.5.255 of recording interval 2. The capture period attribute shall be statically fixed as 24 h.

Association access rights are as follows:

a) *Public client* — No access for all objects.
b) *Meter reader* — Read only for all objects.
c) *Utility setting* — Read only for all objects.

E-12.1 Scaler Profile

This profile is meant for capturing the scaler-unit of each of the parameter listed in Table 57. This is modeled as profile generic (IC=7) and is assigned the country specific OBIS code 1.0.94.91.5.255. The capture objects for this profile shall include the scaler-unit attributes of the parameters listed in Table 57. The profile buffer shall have only one entry.

This profile is not required to be updated periodically.

(*Page* 23, *Table* 30) — Insert the following matter after the Table heading:

‘This is modeled as profile generic with OBIS code = 0.0.94.91.10.255, IC = 7, Attribute = 2’

(*Page* 23, *Table* 30) — Insert the following item after Sl. No. iv) under the Table:

‘Sl No. (v) Category and OBIS code assigned is 0.0.94.91.11.255 and IC = 1 (data).
Sl No. (vi) Current rating and OBIS code assigned is 0.0.94.91.12.255 and IC = 1 (data).
Renumber the existing Sl. No. v), vi) and vii) by vii), viii) and ix)’.

(*Page* 23, *Table* 30) — Substitute the existing matter in the note by the following:
For Sl No. (iv),

‘Value of ‘0’ indicates 3P-3W HT CT PT meters;
Value of ‘1’ indicates 3P-4W meters (applicable for already supplied meters);
Value of ‘2’ indicates 3P 4W HT PT/CT meters;
Value of ‘3’ indicates 3P 4W LT CT meters
Value of ‘4’ indicates 3P 4W whole current meters’

For Sl No. (v),
‘C1 indicates HT (PT/CT operated) and LT (CT operated) consumer meters.
C2 indicates 3 Phase 4 Wire Whole current/Direct connected consumer meters

A indicates category A

For Sl No. (vi), the Current rating shall be represented as “Ib-Imax’.

(*Page* 24, *Table* 31) — Insert the following new Notes after Note 6:
‘7 Parameter at Sl No. (ii) is not applicable for Category B meters.
8 Parameter at Sl No. (iv) is applicable for Category B meters.’

Table 43 Instantaneous Parameters

(*Clause* **E-6.1**, E-6.2 *and* **E-6.3**)

Sl No. (1)	**Parameter** (2)	**OBIS code A.B.C.D.E.F** (3)	**Interface Class/Attributes** (4)
i)	Real time clock – date and time	0.0.1.0.0.255	8/2
ii)	Voltage	1.0.12.7.0.255	3/2
iii)	Phase current	1.0.11.7.0.255	3/2
iv)	Neutral current	1.0.91.7.0.255	3/2
v)	Signed power factor	1.0.13.7.0.255	3/2
vi)	Frequency – Hz	1.0.14.7.0.255	3/2
vii)	Apparent Power – KVA	1.0.9.7.0.255	3/2
viii)	Active Power – kW	1.0.1.7.0.255	3/2
ix)	Cumulative Energy, kWh	1.0.1.8.0.255	3/2
x)	Cumulative Energy, kVAh	1.0.9.8.0.255	3/2
xi)	Maximum Demand, kW	1.0.1.6.0.255	4/2, 5
xii)	Maximum Demand , kVA	1.0.9.6.0.255	4/2, 5
xiii)	Cumulative power ON duration in minutes	0.0.94.91.14.255	3/2
xiv)	Cumulative tamper count	0.0.94.91.0.255	1/2
xv)	Cumulative billing count	0.0.0.1.0.255	1/2
xvi)	Cumulative programming count	0.0.96.2.0.255	1/2

NOTES

1 The above list is identified for the purpose of communication to HOST or HHU.

2 The utilities may choose, based on needs, additional parameters for display purpose only.

3 The parameters at Sl. No. xiii to xvi hold cumulative values at that instant from the date of manufacturing or installation of meter as the case may be.

4 Item at Sl. No. xv, refers to the Billing Period Counter.

5 The RTC-Time format by default shall be HH:MM:SS

6 Signed power factor shall be verified at rated voltage, rated current and rated frequency at 0.5 lag and 0.8 lead.

7 Power and Energy related parameters shall be verified at UPF, 0.5 lag and 0.8 lead.

Table 44 Block Load profile parameters

(*Clause* E-7 *and* E-7.1)

Sl No. (1)	**Parameter** (2)	**OBIS code A.B.C.D.E.F** (3)	**Interface Class/Attributes** (4)
i)	Real time clock – date and time	0.0.1.0.0.255	8/2
ii)	Average voltage	1.0.12.27.0.255	3/2
iii)	Block energy, kWh	1.0.1.29.0.255	3/2
iv)	Block energy, kVAh	1.0.9.29.0.255	3/2

NOTES:

1 The parameters listed in this table are for load survey purpose and are logged as per the block period time.

2 For parameters at Sl. No. ii, the value shall be averaged over integration period and stored at the end of that time block.

3 The parameters at Sl. No.iii and iv are the actual energy consumption during that time block.

4 Support for selective access shall be as defined in **11.3**.

5 The RTC-time format by default shall be HH:MM.

6 Energy related parameters shall be verified at UPF, 0.5 lag and 0.8 lead.

7 The time stamp shall be at the end of the capture period (Ist entry value is 00:15 or 00:30 minutes as applicable and last entry value is 00:00 Hrs. next day).

Table 45 Daily Load profile parameters

(*Clause* **E-8** *and* **E-8.1**)

Sl No.	**Parameter**	**OBIS Code**						**Interface Class/Attribute**
		A	B	C	D	E	F	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	Real time clock, date and time	0	0	1	0	0	255	8/2
ii)	Cumulative energy, kWh	1	0	1	8	0	255	3/2
iii)	Cumulative energy, kVAh	1	0	9	8	0	255	3/2

NOTES :

1 The parameters listed in this table are meant for billing purpose and shall be logged at midnight (00 h).

2 The storage time for these parameters is same as Block load survey.

3 Support for selective access shall be as defined in **11.3**

Table 46 Billing profile parameters

(*Clause* **E-9** *and* **E-9.1**)

Sl No. (1)	**Parameter** (2)	**OBIS code A.B.C.D.E.F** (3)	**Interface Class/Attribute** (4)
i)	Billing date	0.0.0.1.2.255	3/2
ii)	Average power factor for billing period	1.0.13.0.0.255	3/2
iii)	Cumulative energy, kWh	1.0.1.8.0.255	3/2
iv)	Cumulative energy, kWh for TZ1	1.0.1.8.1.255	3/2
v)	Cumulative energy, kWh for TZ2	1.0.1.8.2.255	3/2
vi)	Cumulative energy, kWh for TZ3	1.0.1.8.3.255	3/2
vii)	Cumulative energy, kWh for TZ4	1.0.1.8.4.255	3/2
viii)	Cumulative energy, kVAh	1.0.9.8.0.255	3/2
ix)	Cumulative energy, kVAH for TZ1	1.0.9.8.1.255	3/2
x)	Cumulative energy, kVAH for TZ2	1.0.9.8.2.255	3/2
xi)	Cumulative energy, kVAH for TZ3	1.0.9.8.3.255	3/2
xii)	Cumulative energy, kVAH for TZ4	1.0.9.8.4.255	3/2
xiii)	MD, kW	1.0.1.6.0.255	4/2,5
xiv)	MD, kVA	1.0.9.6.0.255	4/2,5
xv)	Total power ON duration in minutes	0.0.94.91.13.255	3/2

NOTES

1 The data shall be stored up to 6 billing cycles. The billing profile is modelled as Profile generic (IC = 7) object with OBIS Code 1.0.98.1.0.255. The capture objects of this billing profile shall be as per Table 46. The capture object values will be copied into buffer of this object either automatically or asynchronously. The capture period is set to zero, billing action is controlled by billing dates as provided in clause 10 and Table 48.

2 Support for selective access shall be as defined in **11.3**.

3 The current cycle billing parameters shall be readable as the values of the latest billing period, on demand. This shall be in addition to the last 6 billing period data which shall be available in the profile buffer as the last 6 entries in the buffer.

4 The captured attributes in case of Interface Class 4 (Extended register) used for MD values will be attributes 2 and 5 (Value and Time stamp).

5 The Billing Date - Time format by default shall be HH:MM.

Table 47 Name plate details
(*Clause* **E-10** *and* **E-10.1**)

Sl No. (1)	**Parameter** (2)	**OBIS Code A.B.C.D.E.F** (3)	**Interface Class** (4)
i)	Meter serial number	0.0.96.1.0.255	1 (Data)
ii)	Manufacturer name	0.0.96.1.1.255	1
iii)	Firmware version for meter	1.0.0.2.0.255	1
iv)	Meter type	0.0.94.91.9.255	1
v)	Category	0.0.94.91.11.255	1
vi)	Current rating	0.0.94.91.12.255	1
vii)	Meter year of manufacture	0.0.96.1.4.255	1

NOTES

1 For item Sl. No (iv) a value of 5 indicates 1P-2W.

2 For item (v) a value C3 indicates Single phase whole current meter.

3 For item (vi) shall indicate current range (Ib-Imax).

4 For item at Sl. No. (vii) year is mandatory and the format is yyyy.

Table 48 Programmable Parameters
(*Clause* **E-10** *and* **E-10.2**)

Sl No. (1)	**Parameter** (2)	**OBIS Code A.B.C.D.E.F** (3)	**Interface Class** (4)
i)	Real Time Clock – Date and Time	0.0.1.0.0.255	8
ii)	Demand Integration Period	1.0.0.8.0.255	1
iii)	Profile Capture Period	1.0.0.8.4.255	1
iv)	Single-action Schedule for Billing Dates	0.0.15.0.0.255	22
v)	Activity Calendar for Time Zones	0.0.13.0.0.255	20

NOTES

1 The parameters are programmable by the utility engineers with required access rights.

2 Unit for Demand Integration Period and Profile capture period is in “seconds”. The Demand Integration Period shall be 1800 seconds (default) and programmable to 900 seconds. The Profile capture period shall be 1800 seconds (default) and programmable to 900 or 3600 seconds.

3 On change of time zones settings, the on-going billing cycle data will be generated and a new billing cycle shall be commenced as per new activity calendar.

4 All days in a year are considered as uniform day profile for single phase meter.

5 Programming of any of the parameters shall increment the “Cumulative programming count” value.

6 The RTC - Time format by default shall be HH:MM:SS.

Table 49 Indian Event Reference Table — Current Related
(*Clause* **E-11.1** *to* **E-11.4**)

Sl No. (1)	**Event ID** (2)	**Descriptions** (3)
i)	69	Earth Loading — Occurrence
ii)	70	Earth Loading — Restoration

NOTES

1 Occurrence / Restoration are considered as separate events.

2 For each of the events a certain list of parameters shall be captured as per **Table 54**.

3 For each of the occurrence event captured, the cumulative tamper count value shall be incremented.

4 Support for selective access shall be as defined in **11.3**.

Table 50 Indian Event Reference Table — Power Related
(*Clause* **E-11.1** *to* **E-11.4**)

Sl No. (1)	**Event ID** (2)	**Descriptions** (3)
i)	101	Power failure — Occurrence
ii)	102	Power failure — Restoration

NOTES
1 Occurrence / Restoration are considered as separate events.
2 For these events only date and time and event code shall be captured**.**
3 Support for selective access shall be as defined in **11.3**.

Table 51 Indian Event Reference Table — Transaction Related
(*Clause* **E-11.1** *to* **E-11.4**)

Sl No. (1)	**Event ID** (2)	**Descriptions** (3)
i)	151	Real time clock – date and time
ii)	152	Demand integration period
iii)	153	Profile capture period
iv)	154	Single-action schedule for billing dates
v)	155	Activity calendar for time zones

NOTES
1 Occurrence is considered as separate events.
2 For these events only date and time and event code shall be captured**.**
3 Support for selective access shall be as defined in **11.3**.

Table 52 Indian Event Reference Table — Others
(*Clause* **E-11.1** *to* **E-11.4**)

Sl No. (1)	**Event ID** (2)	**Descriptions** (3)
i)	201	Influence of permanent magnet or AC/ DC electromagnet – Occurrence
ii)	202	Influence of permanent magnet or AC/ DC electromagnet – Restoration
iii)	203	DC signal injection in source/load neutral terminal of the meter through diode / rectifier or neutral disturbance – HF - occurrence
iv)	204	DC signal injection in source/load neutral terminal of the meter through diode / rectifier or neutral disturbance – HF - Restoration
v)	207	Single wire operation (neutral missing) – Occurrence
vi)	208	Single wire operation (neutral missing) – Restoration

NOTES
1 Occurrence / Restoration are considered as separate events.
2 For each of the events (Sl. No. i to iv) a certain list of parameters shall be captured as per Table 54. For events (Sl. No. v to vi) only date and time and event code shall be captured**.**
3 For each of the occurrence event captured, the cumulative tamper count value shall be incremented.
4 Support for selective access shall be as defined in **11.3**.

Table 53 Indian Event Reference Table — Non Roll Over Events
(*Clause* **E-11.1** *to* **E-11.4**)

Sl No. (1)	**Event ID** (2)	**Descriptions** (3)
i)	251	Meter Cover Opening – Occurrence

NOTES

1 Occurrence is considered as separate events.

2 For these events only date and time and event code shall be captured**.**

3 Support for selective access shall be as defined in **11.3**.

Table 54 Capture Parameters for Events
(*Clause* **E 11.1** *to* **E 11.4**)

Sl No. (1)	**Parameter** (2)	**A** (3)	**B** (4)	**C** (5)	**D** (6)	**E** (7)	**F** (8)	**IC** (9)
i)	Date and Time of event	0	0	1	0	0	255	8
ii)	Event Code	0	0	96	11	0	255	1
iii)	Current	1	0	94	91	14	255	3
iv)	Voltage	1	0	12	7	0	255	3
v)	Power Factor	1	0	13	7	0	255	3
vi)	Cumulative Energy – kWh	1	0	1	8	0	255	3

NOTES

1 Capture parameters mentioned in the table are to be captured when event occurrence and restoration is logged.

2 Sl. No. iii) is instantaneous current used for energy consumption.

3 For event capture, RTC-Time format shall be HH:MM.

Table 55 List of Tests for Category C3 Meter (Single Phase Whole current Meter)

Sl No.	**Item No.**	**Particulars of Test**	**Clause Reference No.**
		Compliance Test	
i)	1.0	Conformance to DLMS/COSEM (IEC 62056)	**K – 1 a)**
ii)		Parameter Verification:	
iii)	2.0	SNRM/UA	**4.1 and 4.2**
iv)	3.0	Object list download	**5.1 and 5.2**
v)	4.0	Association properties	**5.1 and 5.2**
vi)	5.0	Simultaneous operation	**4.3**
vii)	6.0	Security:	**7.5**
viii)	(a)	Lowest Level Security Secret	**7.5.1.1**
ix)	(b)	Low Level Security (LLS) Secret	**7.5.1.2**
x)	(c)	High Level Security (HLS) Secret	**7.5.1.3**
xi)	7.0	Parameter list:	
xii)	(a)	Instantaneous Parameters	**E-6.1 and Table 43**
xiii)	(b)	Snap Shot of Instantaneous Parameters	**E-6.2**
xiv)	(c)	Scaler Profile	**E-6.3**
xv)	8.0	Block Load Profile Parameters	**E-7, E-7.1 and Table 44**
xvi)	9.0	Selective access by Range for Block Load Profile	**11.3**
xvii)	10.0	Daily Load Profile Parameters	**E-8, E-8.1 and Table 45**
xviii)	11.0	Selective access by Range for Daily Load Profile	**11.3**
xix)	12.0	ToU setting	**9**
xx)	13.0	Billing Profile Parameters	**E-9, E-9.1 and Table 46**
xxi)	14.0	Billing Period	**10.1 and 10.2**
xxii)	15.0	Billing Period Counter	**11.2.1 and 11.2.2**
xxiii)	16.0	Selective access by Entry for Billing Profile	**11.3**

Sl No.	Item No.	Particulars of Test	Clause Reference No.
		Compliance Test	
xxiv)	17.0	General Purpose Parameters:	**E-10**
xxv)	(a)	Name Plate Details	**E-10.1 and Table 47**
xxvi)	(b)	Programmable Parameters	**E-10.2 and Table 48**
xxvii)	18.0	Event code and Event logging:	**8.1, 8.2, E-11, E-11.1 to E11.4 and Table 54**
xxviii)	(a)	Indian Event Reference Table - Current Related	**Table 49**
xxix)	(b)	Indian Event Reference Table - Power Related	**Table 50**
xxx)	(c)	Indian Event Reference Table - Transaction Related	**Table 51**
xxxi)	(d)	Indian Event Reference Table – Others	**Table 52**
xxxii)	(e)	Indian Event Reference Table - Non Roll Over	**Table 53**
xxxiii)	19.0	Selective access by Entry for Event Log Profile	**11.3**

Table 56 Billing Profile Parameters
(*Clause* **E-5.1**)

Sl No.	Parameter	OBIS Code						Interface Class No./ Attribute
		A	B	C	D	E	F	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	Billing date	0	0	0	1	2	255	3/2
ii)	Cumulative energy, kWh (Import)	1	0	1	8	0	255	3/2
iii)	Cumulative energy, kWh (Export)	1	0	2	8	0	255	3/2
iv)	Cumulative energy, kVAh (Import)	1	0	9	8	0	255	3/2
v)	Cumulative energy, kVAh (Export)	1	0	10	8	0	255	3/2
vi)	Cumulative energy, kvarh, Quadrant I	1	0	5	8	0	255	3/2
vii)	Cumulative energy, kvarh, Quadrant II	1	0	6	8	0	255	3/2
viii)	Cumulative energy, kvarh, Quadrant III	1	0	7	8	0	255	3/2
ix)	Cumulative energy, kvarh, Quadrant IV	1	0	8	8	0	255	3/2
x)	Total power ON duration in minutes	0	0	94	91	13	255	3/2

NOTES

1 The data are stored up to 6 billing cycles. The billing profile is modeled as Profile generic (IC = 7) object with OBIS Code 1.0.98.1.0.255. The capture objects of this load profile are as per Table. The capture object values will be copied into buffer of this object either automatically or asynchronously. The capture period is set to zero, billing action is controlled by billing dates as provided in cl. 10 and Table 31.

2 Support for selective access shall be as defined in 1**1.3**.

3 The current cycle billing parameters shall be readable as the values of the latest billing period, on demand. This shall be in addition to the last 6 billing period data which shall be available in the profile buffer as the last 6 entries in the buffer.

4 The Billing Date - Time format by default shall be HH:MM.

5 Billing Date and Time shall be current date and current time.

Table 57 Daily Load Profile Parameters
(*Clause* **E-12.1**)

Sl No.	Parameter	OBIS Code						Interface Class/Attribute
		A	B	C	D	E	F	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	Real time clock, date and time	0	0	1	0	0	255	8/2
ii)	Cumulative energy, kWh	1	0	1	8	0	255	3/2
iii)	Cumulative energy, kVAh	1	0	9	8	0	255	3/2

NOTES

1 The parameters listed in this table are meant for billing purpose and shall be logged at midnight (00 h).

2 The storage time for these parameters is same as Block load survey.

3 Support for selective access shall be as defined in **11.3**.

(ETD 13)

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